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NOTICE OF ALLOWANCE AND FEE(S) DUE

53080 7590 10/04/2011
MCDERMOTT WILL & EMERY LLP
600 13TH STREET, NW
WASHINGTON, DC 20005-3096

EXAMINER

HAN, KWANG S

ART UNIT

PAPER NUMBER

1727

DATE MAILED: 10/04/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,186	07/25/2006	Kazuhiro Sugie	043888-0490	8019

TITLE OF INVENTION: LONG LIFE AND LOW CORROSION LEAD STORAGE BATTERY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1740	\$300	\$0	\$2040	01/04/2012

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE** OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail

**Mail Stop ISSUE FEE
Commissioner for Patents
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or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the **ISSUE FEE** and **PUBLICATION FEE** (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

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WASHINGTON, DC 20005-3096

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

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nonprovisional	NO	\$1740	\$300	\$0	\$2040	01/04/2012

EXAMINER	ART UNIT	CLASS-SUBCLASS
HAN, KWANG S	1727	429-161000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB-112) attached;
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB-47, Rev. 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively, _____ 1
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. _____ 2
_____ 3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.111. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE _____

(B) RESIDENCE: (CITY and STATE OR COUNTRY) _____

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reuply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims **SMALL ENTITY** status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming **SMALL ENTITY** status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.**

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DATE MAILED: 10/04/2011

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 1046 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 1046 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability**Application No.**

10/587,186

Applicant(s)

SUGIE ET AL.

Examiner

Kwang Han

Art Unit

1727

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address-

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the request for continued examination filed on January 5, 2010.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 1 and 7-15.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date ____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____

LONG LIFE AND LOW CORROSION LEAD STORAGE BATTERY

Examiner: K. Han SN: 10/587,186 Art Unit: 1727 September 30, 2011

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 5, 2010 has been entered. Claims 2-4 were cancelled. Claim 1 was amended. Claims 9-15 were added.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

EXAMINER'S AMENDMENT

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Natt McQueen on September 22, 2011 and September 23, 2011.

IN THE CLAIMS:

1. (Currently amended) A lead storage battery including:

an electrode plate pack comprising a plurality of negative electrode plates which each comprise a negative electrode grid having a tab and a negative electrode active material layer retained by said negative electrode grid, a plurality of positive electrode plates which each comprise a positive electrode grid having a tab and a positive electrode active material layer retained by said positive electrode grid, and a plurality of separators separating said positive electrode plate and said negative electrode plate;

a positive electrode connecting member comprising a positive electrode strap to which said tab of each positive electrode plate of the electrode plate pack is connected, and a positive electrode pole or a positive electrode connecting body provided at said positive electrode strap; and

a negative electrode connecting member comprising a negative electrode strap to which said tab of each negative electrode plate of the electrode plate pack is connected, and a negative electrode pole or a negative electrode connecting body provided at said negative electrode strap,

wherein said positive electrode grid, said negative electrode grid, said positive electrode connecting member, and said negative electrode connecting member comprise a Pb-alloy including at least one of Ca and Sn,

said Pb-alloy in said positive electrode grid and said positive electrode connecting member does not include Sb, or contains Sb in an amount of 0.001 to 0.002% by mass as an impurity;

said Pb-alloy in said negative electrode grid and said negative electrode connecting member does not include Sb, or contains Sb in an amount of less than 0.0001% by mass as an impurity;

said separator comprises a microporous synthetic resin sheet and silica particles dispersed in said synthetic resin sheet, and includes 35 to 85% by mass of said silica particles; and

~~a part of said negative electrode grid excluding said tab includes 0.0002 to 0.006 parts by mass of said Sb per 100 parts by mass of the negative electrode active material~~

wherein said negative electrode grid is divided into an upper part, a middle part and a lower part, such that the upper part is closest to the tab and the lower part is furthest from the tab, and

a lead alloy layer including Sb, which includes 0.0002 to 0.006 parts by mass of said Sb per 100 parts by mass of the negative electrode active material, is attached only to the lower part of the negative electrode grid.

2-6. (Cancelled)

7. (Original) The lead storage battery in accordance with claim 1, wherein said positive electrode grid comprises a base material layer comprising Pb alloy including at

least one of said Ca and Sn, and a lead alloy layer including Sn formed on at least a part of said base material layer.

8. (Original) The lead storage battery in accordance with claim 1, wherein said separator is shaped like a bag, and accommodates said negative electrode plate.

9. (Previously Presented) The lead storage battery in accordance with claim 1, wherein said separator includes 40 to 85 % by mass of said silica particles.

10. (Previously Presented) The lead storage battery in accordance with claim 1, wherein said separator includes 40 to 65 % by mass of said silica particles.

11. (Previously Presented) The lead storage battery in accordance with claim 1, wherein said part of said negative electrode grid excluding said tab includes 0.0004 to 0.006 parts by mass of said Sb per 100 parts by mass of the negative electrode active material.

12. (Currently amended) A lead storage battery including:

an electrode plate pack comprising a plurality of negative electrode plates which each comprise a negative electrode grid having a tab and a negative electrode active material layer retained by said negative electrode grid, a plurality of positive electrode plates which each comprise a positive electrode grid having a tab and a positive electrode active material layer retained by said positive electrode grid, and a plurality of separators separating said positive electrode plate and said negative electrode plate;

a positive electrode connecting member comprising a positive electrode strap to which said tab of each positive electrode plate of the electrode plate pack is connected,

and a positive electrode pole or a positive electrode connecting body provided at said positive electrode strap; and

a negative electrode connecting member comprising a negative electrode strap to which said tab of each negative electrode plate of the electrode plate pack is connected, and a negative electrode pole or a negative electrode connecting body provided at said negative electrode strap,

wherein said positive electrode grid, said negative electrode grid, said positive electrode connecting member, and said negative electrode connecting member comprise a Pb-alloy including at least one of Ca and Sn,

said Pb-alloy in said positive electrode grid and said positive electrode connecting member does not include Sb, or contains Sb in an amount of 0.001 to 0.002% by mass as an impurity;

said Pb-alloy in said negative electrode grid and said negative electrode connecting member does not include Sb, or contains Sb in an amount of less than 0.0001% by mass as an impurity;

said separator comprises a fiber mat and silica particles retained by said fiber mat, and includes 5 to 50% by mass of said silica particles; and

~~a part of said negative electrode grid excluding said tab includes 0.0002 to 0.006 parts by mass of said Sb per 100 parts by mass of the negative electrode active material~~

wherein said negative electrode grid is divided into an upper part, a middle part and a lower part, such that the upper part is closest to the tab and the lower part is furthest from the tab, and

a lead alloy layer including Sb which includes 0.0002 to 0.006 parts by mass of said Sb per 100 parts by mass of the negative electrode active material is attached only to the lower part of the negative electrode grid.

13. (Previously Presented) The lead storage battery in accordance with claim 12, wherein said separator includes 10 to 50 % by mass of said silica particles.

14. (Previously Presented) The lead storage battery in accordance with claim 12, wherein said separator includes 10 to 40 % by mass of said silica particles.

15. (Previously Presented) The lead storage battery in accordance with claim 12, wherein said part of said negative electrode grid excluding said tab includes 0.0004 to 0.006 parts by mass of said Sb per 100 parts by mass of the negative electrode active material.

Claim Rejections - 35 USC § 103

4. The claim rejection under 35 U.S.C. 103(a) as unpatentable over Yonemura in view of Ohba et al. on claims 1-8 is withdrawn, because of the amendments to independent claim 1.

Double Patenting

5. The claim rejection on the ground of nonstatutory obviousness-type double patenting over copending Application No. 10/585078 in view of Yonemura on claims 1, 2, 3, 4, and 8 is withdrawn, because of the amendments to independent claim 1.

Contact/Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang Han whose telephone number is (571) 270-5264. The examiner can normally be reached on Monday through Friday 8:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Barbara Gilliam can be reached on (571) 272-1330. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. H./
Examiner, Art Unit 1727

/Barbara L. Gilliam/
Supervisory Patent Examiner, Art Unit 1727